

At-Home Resistance Training Guide for the Older Adult

An Honors Thesis (HONR 499)

by

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Abstract

The aging process is an inevitable part of every person's life, but some symptoms of this process like sarcopenia and loss of bone density can be mitigated with a resistance training program. Resistance training keeps the muscles and bones strong which enables the older adult to retain their independence in activities in daily living with a reduced chance of injuries such as bone fractures. However, barriers such as a lack of transportation, fiscal resources, knowledge, and being uncomfortable can prevent this population from going to a gym to workout. This guide was created to equip the older adult with resources to incorporate a resistance training program from their home. This guide explains how to build program a training schedule based on current health status and 5-10 exercises from the following muscle groups: lower body, upper body multi-joint, upper body single joint, and core. Each exercise includes the recruited muscles, joint action, required materials, visual demonstrations, written instructions, progressions, and regression. All exercises can be completed at home using common household items.

Acknowledgements

I would like to thank Tonya Skalon for advising and encouraging me to complete this project as well as these past four years.

I would also like to thank the staff and clients of MedX of Estes in Estes Park, Colorado. They inspired me to write this guide for the older adult population and have grown my passion for working with this population in my future career.

Finally, I would like to thank my parents, Bob and Wendy, for always supporting me in the pursuit of my dreams.

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Process Analysis Statement

The inspiration for this project comes from the gym where I completed my internship experience, MedX of Estes. Most of the clients served at this gym were over the age of 50 and numerous clients who were still regularly working out at this gym were well into their eighties. It was revelatory for me to see so many people in their later years remaining so active and being responsible for their health. This made me consider the barriers the older adult population must overcome to workout at a gym.

First, they must be able to afford a gym membership or home gym equipment and have regular access to transportation to the gym. Gym memberships can get very expensive and driving privileges are revoked for several reasons including medication side effects and physical and mental disabilities. If they can afford a membership and drive, once they get to the gym, the large gym equipment and the crowds of younger people can create an unwelcoming atmosphere. Exercising itself already makes individuals physically uncomfortable, so if the atmosphere is also uncomfortable, the desire to return to that environment to workout decreases. Finally, the older adult needs to be able to know how to use the equipment safely. Not knowing how to use the weights properly can cause serious injury. This guide eliminates those barriers by giving a list of exercises that can be done in the comfort of home and decreases costs by using common household objects.

The most time-consuming portion of this project was coming up with the exercises to include in this guide. Some of the exercises are common weightlifting exercises like squats, lunges, chest press, pushups, etc. However, I intentionally chose to exclude some common exercises from this guide including sit-ups, dead lifts, and any Olympic lifts for the main reason that if done incorrectly, there is a high chance of injury. Other exercises are ones that I have picked up during my time as an athlete, trainer, and as an exercise science student. I created some novel exercises based on my knowledge of anatomy and body kinematics that I learned in my exercise science classes. Creating progressions and regressions posed challenges of making another exercise that utilized the same muscle groups, but

changed the workload by modifying the exercise slightly. Utilizing my knowledge of biomechanics and manipulating the forces of torque and gravity to increase or decrease the muscular workload assisted in the developing the exercise.

I faced another challenge of writing the instructions for each exercise. This was very difficult because when working with a client, it is easiest to demonstrate the exercise first then give a few verbal corrections as the client performs the exercise. I found the best way to write clear instructions for this guide was to read the instructions to a volunteer (my mother) verbatim, and see if she would perform the exercise without knowledge of which one she was doing.

Writing the introduction was the final step to completing the guide. It is just as important to know how to use the exercises given in an effective manor in order to prevent overuse injuries and delayed onset muscle soreness in addition to seeing the most benefits that comes with a well programed training schedule. I began the introduction by explaining why resistance training is needed specifically for the older adult, giving sedentary people motivation to start working out and active people to keep on working out even if they can't get to the gym. This utilized information from what I learned in my exercise physiology classes about aging in sports. The rest of the introduction is drawn from what I learned in my exercise prescription, sports performance, and leadership in resistance training courses. This brief information in this guide on building a training program is sufficient to create self-efficacy for the reader; they can create a plan, do the workouts, and reap the benefits of the program they created themselves.

Introduction

What is Resistance Training? Is it Important?

Exercise is primarily categorized into two different groups: aerobic and anaerobic exercise. The word “aerobic” means requiring oxygen and refers to exercise where your body uses the oxygen you breathe in to make energy that sustains prolonged bouts of movement such as walking, cycling, and running. Aerobic exercise trains your cardiovascular system and allows your heart, lungs, and blood to work more efficiently (Patel 135-136). The other term “anaerobic” means without oxygen and refers to exercise where your body makes the energy without using the oxygen you breathe. This type of exercise tends to be short bouts of exercise and explosive in nature like sprinting, jumping, and weightlifting also known as resistance training. Aerobic training improves your heart health, anaerobic training improves your muscles and bone health (Patel 136). A well-rounded exercise routine includes both types of exercises but incorporating resistance training in your program can be confusing to someone who has no prior knowledge or experience with anatomy or training programming. This guide was created to overcome these barriers and aide the older adult in successfully adding resistance training to their lives.

As people get older, the amount of physical activity decreases. A study of over 1,200 adults between the ages of 60-80 concluded that physical activity and functional fitness decreases as a result of the aging process. This study determined that the aging process results in an increase in body fat, reduction of muscular strength, and loss of flexibility, agility, and endurance. While it is impossible to prevent the aging process from occurring, maintaining physical activity slows it down and could sustain a healthy way of life (Milanovic 554). Resistance training is thought to be an effective intervention against an age-related deterioration of muscle mass and strength called sarcopenia. Sarcopenia can lead to increased risk of falls and hip fractures and a loss of bone mineral density increasing the likelihood of osteoporosis (Hurley and Roth 250). Muscular strength can decrease at a rate of 12-14% every ten years after the age of 50 (Milanovic 554). Regardless of age, incorporation of a resistance training programs

will increase muscle mass and make bones stronger by increasing bone mineral density. A study with 160 participants conducted 40-week resistance training interventions varying in intensity and frequency and found that every program ranging from low to high intensity produced a significant increase in bone mineral density (Bemben and Bemben 186). The increase of muscle mass aides in maintaining a healthy body composition, and the maintenance of muscular strength and bone density enables the older individual to keep independence in activities of daily living (Fragala et al. 2019-2020).

The purpose of this guide is to help the older adult build an at-home resistance training program tailored to their health goals so that negative events of aging process may be slowed down or delayed. The introduction of this guide will instruct the user in how they should build their program based their current fitness level. The second half of the guide gives five to ten exercises in each of the following categories: lower body, upper body multi-joint, upper body single joint, and core exercises. Each exercise includes the recruited muscles groups, joint actions, required materials to complete the exercise, instructions and pictures of the exercises, and progressions and regressions to adjust to the ability of the user.

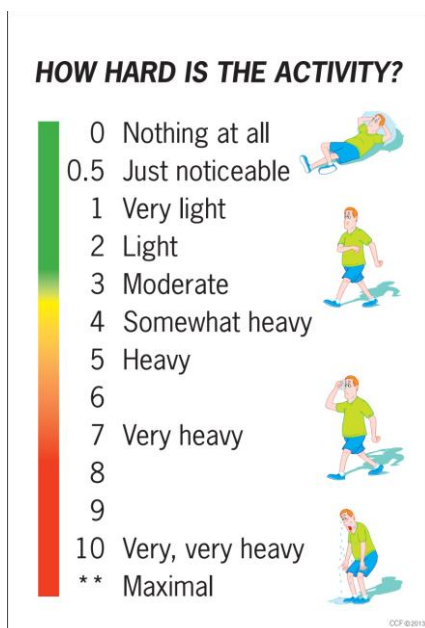
Resistance Training Guidelines for the Older Adult

This resistance training guide will supply exercises that will work all major muscles groups in the body. However, to gain the most benefits, it is important to know how often, hard, how long, and what type of exercises should be included in an exercise prescription. This is called a FITT Recommendation. FITT stands for Frequency, Intensity, Time, and Type.

Frequency is how often something should be done. For example, brushing your teeth twice a day describes frequency. Most resistance training recommendations have the similar frequencies of two to three times per week.

Intensity explains how hard these exercises should feel or how much effort you are giving to perform an exercise. To measure intensity, use the Rate of Perceived exertion scale also known as the

RPE scale. While doing an exercise ask yourself “How hard do I feel like I am working?” Rate your effort level on a scale of zero to ten with ten being the highest intensity. Below is a table that will help guide you with deciding an effort level for your intensity recommendation (“Rated Perceived Exertion”):



Time generally refers to how long to do an exercise for. In resistance training, time also includes the number of different exercises completed in one resistance training session as well as the number of sets and repetitions to complete for each exercise. A repetition is completing the exercise movement one time. For example, completing one squat is one repetition. The number of repetitions completed depends on health goals, but generally ranges from 8-20. A set is how many times you complete the desired number of repetitions. For instance, when you complete 12 repetitions of a squat, that is one set. Then you take a break and complete another 12 repetitions of a squat, and that is a total of two sets. Again, the number of sets completed depends on health goals as well as resistance training experience. Generally, the recommended number of sets ranges from one to three. Novice lifters with begin with one set and progress to two to three sets over time. Time will also explain how many different exercises to do during a training session. If you are following the ACSM recommendations, you will do eight to ten different exercises in one session.

Finally, type refers to which kind of resistance training such as free weight, body weight, or machine weights and what type of movement style, slow and rhythmic or fast and explosive, a population group should be doing. Type can also describe if one training session should exercise muscles of the entire body or focus on one part of the body like the legs or arms. The American College of Sports Medicine (ACSM) guidelines for the older adult do not specify if workouts should be total body or concentrated on one part of the body for example upper body one day and lower body the next day. However, ACSM does recommend a 48-hour rest period between the muscle groups worked. For example, if you do squats on Monday, wait until Wednesday before completing the exercises again. Starting out, a good recommendation is choosing an equal number of lower body, upper body, and core exercises, and perform the exercise in order of large muscles groups to smaller muscle groups (Fragala 2025-2026).

ACSM compiles FITT recommendations for various population groups including guidelines for the older adult. ACSM guidelines are compiled by experts using peer-reviewed exercise tests, and these guidelines are used by many health and fitness professionals to create personalized exercise prescriptions for their clients. Below are the ACSM Resistance training FITT Recommendations for the older adult (Riebe 193):

Resistance Training FITT Recommendations for Older Adult	
Frequency	At least 2 days per week
Intensity	Beginners: Exercises should be a light intensity (5-6 RPE) Intermediate to Advanced: Moderate to vigorous intensity (7-8 RPE)
Time	8-10 Exercises per resistance training session <ul style="list-style-type: none"> • Beginners: 1 set of 10-15 repetitions • Intermediate to Advanced: 1-3 sets of 8-12 repetitions
Type	Resistance training programs should be progressive and be weight bearing – not just body weight exercises.

Materials

This resistance training guide was created so that users can incorporate weightlifting into their exercise routines without having to leave their homes. All materials are common household items such

as chairs, cans of soup, books, etc. with one expectation being resistance bands. When using bodyweight or free weights, the direction of resistance is always down because that is the direction of gravity. Resistance bands were added to the materials list so that the direction of resistance can be changed allowing a wider variety of exercises. Resistance bands are durable, versatile, and relatively inexpensive costing \$20-\$40 and can be purchased online or in most major box stores. When using a resistance band, if the band causes uncomfortable friction on the skin or your skin is fragile and prone to tearing, place a layer of cloth such as a small piece of clothing or a small towel between the resistance band and the skin.

Other materials needed in this guide might include chairs, a flat surface to lie down, pillows, small bouncy balls, or weighted objects. The weighted objects will be used in the place of traditional dumbbells and barbells. There is no limit to what can be used; get creative. If one object is not heavy enough for your needs, try filling grocery bags with books or your normal groceries. If you are using two different objects, be sure to switch the objects to the other hand. For instance, if you are using similar sized books to do your bicep curl, change which hand holds which book between sets. This will account for any weight difference and ensure that one arm is not working harder than the other. Depending on your ability level and the exercise, lighter or heavier weights may be needed. Typically, smaller muscle groups like your forearms or shoulders will require lighter weights compared to larger muscle groups like your hips and legs. If you don't know what an appropriate weight would be, always begin with a lighter weight and increase as you feel comfortable. Below is a chart with the approximate weight of objects to reference how heavy an object might be:

Object	Approximate weight (lbs.)
Can of soup	0.5-1 lbs.
20 fl oz water bottle	1.3 lbs.
2 Liters of water	4.4 lbs.
1 Gallon of water	8.3 lbs.

Progressions and Regressions

The principle of progressive overload states that a training program must continually adapt and progress in order to challenge the body to work harder than normal. As the body works to accommodate the higher workload, the body will become stronger (Kent). Progressive also means gradual. The difficulty of the exercise should increase in small increments. Progressing too quickly can lead to injuries or delayed onset muscle soreness (DOMS).

There are many ways to progress a resistance training program. One of the most common ways to do this is to increase the weight or resistance by using heavier objects or using resistance bands with greater tensions during the exercises. To make sure you are progressing to an appropriate resistance level, use the RPE scale explained in the “Resistance Training Guidelines for the Older Adult” section to see if you are within an appropriate work level for your exercise prescription. The second way to progress a program is to increase the number of sets. If you are new to resistance training, it is recommended to begin with one set, and after a two to three weeks, add another set to each exercise. Finally, each exercise in this guide will come with one to three progressions and regressions. Typically, the progressions will be more compound movements, recruiting more muscles within the body to complete the exercise or increases the working lever arm to make the exercise more difficult while keeping the weight the same. Reevaluate your resistance training program every two to three weeks to see if one or more exercises need to be progressed. If progressing, choose one of the three ways described above (increasing weight, increasing sets, or choosing a progression) to progress the exercise, and make sure the workload is within the recommended level on the RPE scale.

Just as some exercises might be too easy and need to be progressed, some exercises will be too difficult and need to be regressed. You know an exercise needs to be regressed if you: 1) cannot completed the number of recommended repetitions, 2) cannot perform the full range of motion of the exercise, 3) cannot maintain proper form for all repetitions, or 4) the movement is painful. Use the same

steps of progressing exercises to regress a resistance training program, but instead decrease the weight, decrease the sets, or choose a listed regression.

Special Considerations

Other chronic health issues arise with old age, and as a result, your exercise prescription might need to be adjusted based on your health history. The most common chronic illness within the older adult population in the United States are: cardiovascular disease, osteoporosis, arthritis, diabetes, or Cancer (“Older Adults”). Below are the resistance training FITT Recommendations for populations with chronic illness. If you identify with more than one of those populations, choose the ACSM exercise recommendation for the illness that affects you the most day to day and consult with your primary doctor (Riebe 234, 271, 300, 305, 336).

Resistance Training FITT Recommendations for Cardiovascular Disease	
Frequency	At least 2-3 days per week; allow for at least one day of rest in between resistance training sessions.
Intensity	Light-Moderate intensity (4-6 RPE)
Time	8-10 different exercises <ul style="list-style-type: none"> • 1-3 sets of 10-15 repetitions
Type	Use equipment that is safe and comfortable to use

Resistance Training FITT Recommendations for Osteoporosis	
Frequency	Begin with 1-2 days per week allowing for rest days in between sessions Progress to 2-3 days per week
Intensity	Adjust weight so that the last 2 repetitions are challenging to perform (6-8 RPE)
Time	8-10 Exercises per resistance training session <ul style="list-style-type: none"> • Begin with 1 set of 8-12 repetitions; increase to 2 sets after second week
Type	Use equipment that is safe and comfortable to use

Resistance Training FITT Recommendations for Arthritis	
Frequency	2-3 days per week
Intensity	Beginner: light-moderate intensity (5-6 RPE) Intermediate to Advanced: Moderate to Vigorous (6-8 RPE)
Time	8-10 Exercises per resistance training session <ul style="list-style-type: none"> • 2-4 sets of 8-12 repetitions
Type	Machines and Free weights are beneficial. Body weight exercises might not be appropriate for these individuals

Resistance Training FITT Recommendations for Diabetes	
Frequency	At least 2 days per week, but 3 is preferable with rest days in between exercise sessions
Intensity	Moderate to vigorous intensity (5-8 RPE)
Time	8-10 Exercises per resistance training session <ul style="list-style-type: none"> • Beginner: 1-3 sets of 10-15 repetitions; should be near fatigue at end of set • Intermediate to Advanced: 1-3 sets of 8-10 repetitions using heavier weights
Type	Resistance Machines and free weights

Resistance Training FITT Recommendations for Cancer	
Frequency	2-3 days per week
Intensity	Light intensity (2-4 RPE) and progress with small increments
Time	8-10 Exercises per resistance training session <ul style="list-style-type: none"> • At least 1 set of 8-12 repetitions
Type	Free weights, resistance machines, or weight-bearing functional tasks targeting major muscle groups

Lower Body

Exercise: Squat

Primary Muscles: Quadriceps (Rectus Femoris, Vastus Lateralis, Vastus Medialis, Vastus Intermedius) and Bottom (Gluteus Maximus)

Secondary Muscles: Hamstrings (biceps femoris, semitendinosus, semimembranosus) and Outer hip (gluteus minimus and gluteus medius)

Joint Action(s): Hip extension, knee extension and plantar flexion

Materials Needed: None

Visual Demonstration:**Cues:**

- Starting Position
 - Feet should be placed shoulder width apart with toes pointed forward or turned slightly outward (females might be more comfortable with toes pointed outward due to the wider hip position).

- Weight should be distributed through the heels and slightly through the outside of the foot.
- Keep shoulders down and back and contract your core. Extend your arms straight in front of you.
- Movement Pattern
 - Push your hips back while bending at the knees to begin your squat.
 - Keep your chest up and focus on a point about 10 feet in front of you on the floor.
 - During the squat, your knees should be between the second and third toes.
 - Go as far down in the squat as you can while keeping your heels on the floor.
 - Stand back up pushing through the heels.

Progressions:

- Progression 1
 - Hold a weighted object close to your chest with your hands while keeping your elbows close to your sides.
 - Follow the squat cues as normal holding the weight at the chest.
- Progression 2
 - Tie a resistance band into a loop about 1 foot in diameter.
 - Place the resistance band just below the knees.
 - Perform the squat being sure to push against the resistance band keeping your knees between the second and third toe.
- Progression 3
 - Stand with your feet about shoulder width apart with the back of a chair by your side to help with balance as needed.
 - Lift one leg up extended in front of you 6-8 inches off the floor.

- Bend the knee of the standing leg as much as you feel comfortable. Be sure to not let the heel of this leg lift off the ground.
- Keep your hips level – don't let the side of the lifted leg drop.
- Also be aware of your knee position and keep the knee in line with the second and third toe.
- Straighten the standing leg to return to starting position.
- Complete the desired number of repetitions, then switch to the other leg to complete one set.

Regressions:

- Regression 1
 - Stand with your feet shoulder width apart with a chair behind you. The chair should be facing your backside.
 - Squat down until your bottom contacts the seat of the chair. Put as little weight as possible on the chair.
 - Straighten legs to return to standing position.
- Regression 2
 - Stand in front of a chair with feet shoulder width apart.
 - Sit completely back into the chair with a straight back.
 - Do not let your body fall back into the chair – stay in control of the movement all the way down.
 - Lean forward and return to standing position
 - Find a chair with arm rests so that your arms can help push you in and out of the chair if needed.
- Regression 3

- Sit in a chair.
- Hold one end of resistance band in each hand and place one foot in the middle of the resistance band.
- Lift the leg in the resistance band 1-2 feet off the ground with the knee bent at about 90 degrees.
- Extend the leg by pushing through the heel.
- Bend the leg back to 90 degrees.
- Complete the desired number of repetitions, then switch to the other leg to complete one set.

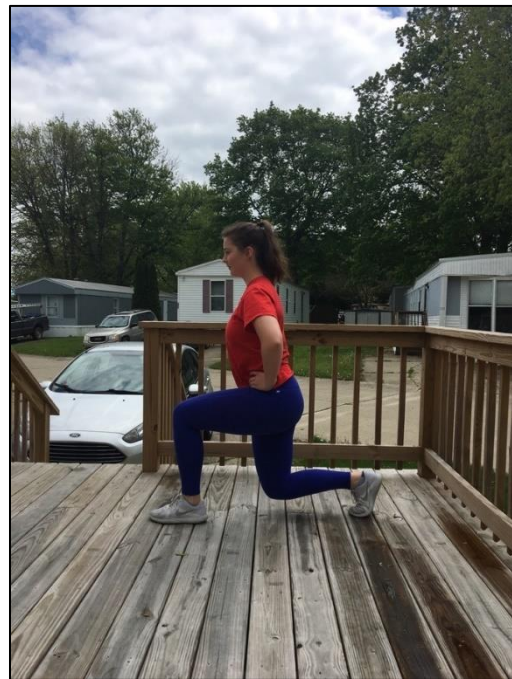
Exercise: Lunges

Primary Muscles: Quadriceps (Rectus Femoris, Vastus Lateralis, Vastus Medialis, Vastus Intermedius) and bottom (Gluteus Maximus)

Secondary Muscles: Hamstrings (biceps femoris, semitendinosus, semimembranosus) and outer hip (gluteus medius, gluteus minimus)

Joint Action(s): knee extension, hip extension

Materials Needed: Chair (for balance if needed)

Visual Demonstration:**Cues:**

- Starting Position
 - Stand with feet shoulder width apart.
 - Place your hands on your hips or behind your head, whichever is more comfortable for you.
 - Place one hand on the back of a chair to help with balance if needed.

- Movement Pattern

- Take a large, but comfortable step (about 2-3 ft.) in front of you.
- Be sure your feet and hips are facing forward and not turned to the side.
- Drop your back knee towards the ground until the knee is 1-2 inches off the ground.
- The front knee should not go past the toes on your front foot. If this happens step the front foot out a little further.
- Both knees should be at a 90-degree angle at the end of the movement.
- Push back up through the front heel and return to starting position.

Progressions:

- Progression 1

- Tie a small loop at each end of a resistance band about 1 foot apart from each other.
- Place one loop around each ankle and begin in lunge starting position.
- Perform the movement pattern as normal with the resistance band. Around ankles.

- Progression 2

- Begin in lunge starting position.
- With your left foot take a large step (2-3 ft.) forward and about 6 inches to the right.
- Drop your back knee to the ground bend both knees to about 90 degrees.
- Push up through the heel of the front foot and return to starting position. Repeat on other side.

Regressions:

- Regression 1

- Start with one foot about 2-3 ft. in front of the other.
- Drop the back knee towards the ground until it is about 1-2 inches above the ground, bending both knees to about 90-degrees

- Push through the heel of the front foot to straighten the legs, but do not step the front foot back. Keep feet in staggered position
- Regression 2
 - Begin standing with your feet together.
 - Step backward about 2-3 ft with the foot instead of forward. This will be a little easier to balance than stepping forward.
 - Perform the rest of the exercise as normal.

Exercise: Leg extension

Primary Muscles: Thighs (Rectus Femoris, Vastus Lateralis, Vastus Medialis, Vastus Intermedius)

Secondary Muscles: N/A

Joint Action(s): Knee Extension

Materials Needed: Chair

Visual Demonstration:



Cues:

- Starting position
 - Sit on a chair with your feet flat on the ground.
- Movement Pattern
 - Moving from the knee, extend one leg as straight as you can.
 - Hold for 3 seconds and return to starting position.
 - Repeat on other side; performing movement pattern on each leg is one repetition.

Progressions:

- Progression 1
 - Tie a small loop in each end of the resistance band. The loops should be about 1 foot apart.
 - Place one ankle in each loop.
 - Follow the starting position and movement pattern cues for the leg extension with the resistance band.
- Progression 2
 - Progress to more difficult exercises like the squat or lunge which incorporate more advanced movement patterns.

Regressions:

- Regression 1
 - If struggling to get full knee extension, lie down on a flat surface and place a rolled towel or folded pillow underneath your knees to raise knees about 12 inches off the ground.
 - Straighten one leg as much as you can. Hold for 3 seconds then relax.
 - Repeat on other side; performing exercise on both legs is one repetition.

Exercise: Leg curl

Primary Muscles: Hamstrings (Biceps femoris, semimembranosus, and semitendinosus)

Secondary Muscles: N/A

Joint Action(s): Knee Flexion

Materials Needed: Resistance band

Visual Demonstration:



Cues:

- Starting Position
 - Tie a loop in one end of a resistance band and a knot in the other end.
 - Shut the knot in a door about a 6-8 inches above the floor and place the loop around one ankle.
 - Stand facing the door, far enough away so that there is a little tension in the resistance band.
- Movement Pattern

- Bend the leg with the resistance band at the knee and bring the heel of that leg towards your bottom.
- Keep the knees of both legs together. The knee of the bending leg should point towards the floor.
- Bend the leg as far as you can, hold for 1 second and return to starting position.
- Complete the desired number of repetitions on each leg to complete one set.

Progressions:

- Progression 1
 - Stand with your feet together with a chair beside you to help with balance as needed.
 - Bend the knee of one leg, bringing the heel as close to the bottom as possible. The knee of the bending leg should point towards the ground.
 - Hold for 15-30 seconds squeezing the heel to the bottom, then return to the starting position.
 - Add a pulse to the movement by quickly moving the heel back and forth about 2 inches in the bent position.
 - Pulse for 15-30 seconds and repeat on the other leg to complete a set.
- Progression 2
 - Same as progression 1 but hold a small bouncy ball or pillow behind your knee to add resistance to the movement.

Regressions:

- Regression 1
 - Lie down on a flat surface.
 - With your legs together, bend your knees to about 90-degrees so your feet can lie flat on the ground.

- Slide the heel of one leg away from you so that the leg becomes straight.
- Then slide the heel back toward the body and bring it as close to the body as possible.

Hold for 3 seconds.

- Return to starting position.
- Repeat on other leg. Complete exercise on both legs to complete one repetition.

Exercise: Adductors

Primary Muscles: Groin (Pectineus, adductor longus, adductor brevis, gracilis, adductor magnus)

Secondary Muscles: N/A

Joint Action(s): Hip Adduction

Materials Needed: Chair (optional)

Visual Demonstration:



Cues:

- Starting Position
 - Stand with your feet together. Place a chair in front of you to use the back of the chair for balance as needed.
- Movement Pattern
 - Shift your weight to the right leg and slightly lift the left leg extended in front of you so that the heel is about 2 inches off the ground.

- Bring the left foot as far to the right as possible, passing just in front of the right leg.

Hold for 1 second and return to starting position. Use chair for balance if needed.

Progressions:

- Progression 1
 - Tie a knot in one end of a resistance band and a loop in the other end.
 - Place the loop around the right ankle and shut the knot in a door 6-8 inches above the ground.
 - Stand perpendicular to the door with the right leg closest to the door. Stand far enough away from the door that the resistance band has a little bit of tension.
 - Extend the right leg out to the right side of the body.
 - Slowly bring the right leg in towards the left side body, passing the right foot in front of the left leg.
 - Hold for 1 second and return to starting position. Use chair for balance if needed.
 - Complete the desired number of repetitions and change legs. Completing both sides is one set.

Regressions:

- Regression 1
 - Lie on your side.
 - Straighten the bottom leg and bend the top leg to place the foot of that leg in front of the knee of your bottom leg. The knee of the top leg should point up towards the ceiling.
 - Raise the bottom leg towards the ceiling.
 - Hold for 1 second and return to the starting position.

- Complete the desired number of repetitions and change legs. Completing both sides is one set.
- Regression 2
 - Sit on the edge of a chair with good posture.
 - Place a small bouncy-ball or folded pillow between your knees.
 - Squeeze the object as hard as you can for 1 second, then relax.

Exercise: Abductors

Primary Muscles: outer hip (gluteus minimus and gluteus medius)

Secondary Muscles: N/A

Joint Action(s): Hip abduction

Materials Needed: Chair (optional)

Visual Demonstration:



Cues:

- Starting Position
 - Stand with your feet together. Stand behind a chair to hold on to the back of it to aid with balance if needed.
- Movement Pattern
 - Shift your weight to one leg.
 - Lift the other leg out to the side of your body as far as you can go.
 - Do not let the foot of this leg turn out. Keep the toes pointing forward.

- Do not let your torso tilt to the side. All movement should come from the hips.
- Lower the leg to starting position.
- Complete the desired number of repetitions and change legs. Completing both sides is one set.

Progressions:

- Progression 1
 - Tie a knot in one end of the resistance band and a loop in the other end.
 - Shut the knot in a door 6-8 inches above the floor and place the loop around the left ankle.
 - Standing perpendicular to the door with your right leg closest to the door, extend the left leg to the side of your body.
 - Hold for 1 second and slowly return to starting position.
 - Be sure to keep feet and hips facing forward and don't let the torso lean to the side.
- Progression 2
 - Tie the ends of the resistance band together so that the band forms one loop about 1 foot in diameter.
 - Place the loop around both legs just below the knees.
 - Bend at the knees and hips into a quarter squat.
 - Take four side steps to the left then four side steps to the right pushing the knees out.
 - Be sure to keep feet and hips facing forward and torso upright.
 - Go into a deeper squat to progress this even further.

Regressions:

- Regression 1
 - Sit in a chair

- Wrap a resistance around your legs just above your knees.
 - Keeping your feet together, push the knees out to the side.
 - Hold for 1 second, then return to starting position.
- Regression 2
 - Lie down on your side, and slightly bend the bottom leg for balance.
 - Flex the foot of your top leg.
 - Lift the top leg towards the ceiling about 2-3 feet.
 - Be sure to keep the foot and hips facing forward; do not let them rotate towards the ceiling.
 - Lower foot back to starting position.
- Regression 3
 - Lie on your side and bend at the hips approximately 90-degrees bringing your knees forward so that your feet are in line with your hips, spine, and head. Your feet are tucked up near your bottom.
 - Keeping your hips facing forward and your feet together, lift the knee of the top leg toward the ceiling. Think of a clam shell movement.
 - Hold for 1 second then return to starting position.
 - Progress this by putting a looped resistance band around your knees.

Exercise: Calf Raises

Primary Muscles: Calves (Gastrocnemius, soleus)

Secondary Muscles: N/A

Joint Action(s): Planter flexion

Materials Needed: Chair (optional)

Visual Demonstration:



Cues:

- Starting Position
 - Stand with your feet about shoulder width apart and feet facing forward.
- Movement Pattern
 - push up on your toes and lift your heels off the ground.
 - Hold for 1 second, then return to starting position.
 - Use a chair for balance as needed.

Progressions:

- Progression 1
 - Stand in calf raise starting position but stand in the middle of a resistance band and hold one end of the resistance band in each hand.
 - The band should be under your toes.
 - Perform the movement pattern holding onto the resistance band.
 - Alternatively, you can also hold weighted objects by your side or at your chest and perform the exercises.
- Progression 2
 - Beginning in the calf raise starting position, turn your feet outward and perform the exercise.
 - Complete another set with your feet turned inward.
- Progression 3
 - Stand on a step and let your heels hang off the edge.
 - Perform the movement pattern in this starting position.
 - Be careful that the ledge is not too far off the ground or at the top of a flight of stairs in case you lose your balance.

Regressions:

- Regression 1
 - Sit down on the floor with your legs extended in front of you.
 - Place middle of the resistance band around your toes and hold one end of the resistance band in each hand.
 - Point your toes down towards the floor keeping your hands by your sides.

- Hold for one second then point your toes back up towards the ceiling to complete one repetition.

Upper Body Multi-Joint

Exercise: Chest Press

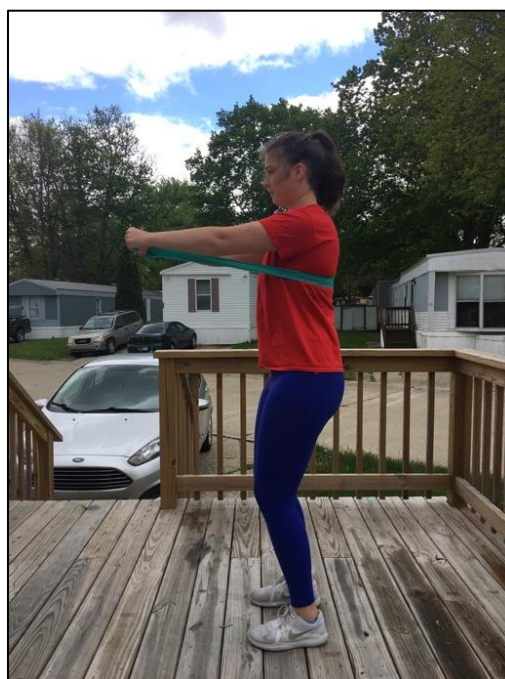
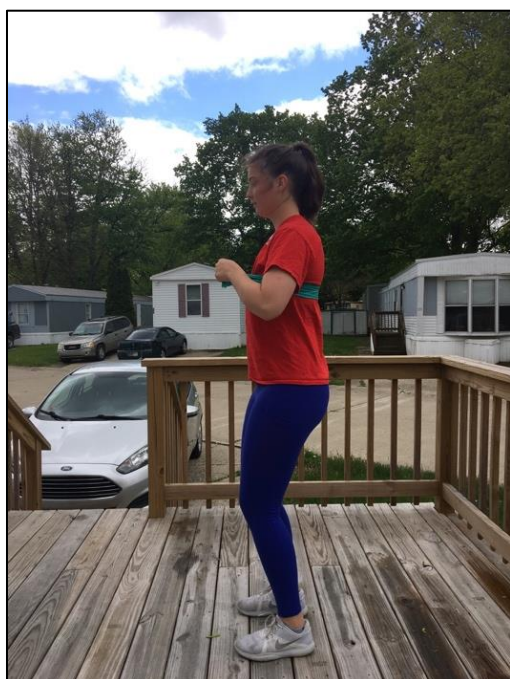
Primary Muscles: Chest (Pectoralis Major, Pectoralis Minor) and arms (Triceps Brachii)

Secondary Muscles: Serratus Anterior, Anterior Deltoid

Joint Action(s): Horizontal shoulder abduction, elbow extension

Materials Needed: Resistance Band

Visual Demonstration:



Cues:

- Starting Position
 - Hold one end of the resistance band in each hand and wrap the resistance band around the back and under your armpits.
 - Bring your hands close to your shoulders and point your elbows out to the side.
 - There should be a little bit of tension on the resistance band in the starting position. If there isn't tension, move your hand up on the resistance band, further away from the ends.

- Movement Pattern
 - Extend your arms, pushing your hands straight out in front of you.
 - Return to starting position.

Progressions:

- Progression 2
 - Tie a knot in the middle of the band and shut it in a door frame about shoulder height.
 - Stand facing away from the door and hold one end of the resistance band in each hand.
 - Take 2-3 steps away from the door to increase tension on the band and perform the exercise.

Regressions:

- Regression 1
 - Lie down on your back with a weighted object in each hand.
 - Start with your hands by your shoulders and elbows pointed out to the side.
 - Extend your arms, and raise your hands toward the ceiling.
 - Bend your arms and return to starting position.

Exercise: Shoulder Press

Primary Muscles: Shoulders (Medial and Anterior Deltoid), upper trapezius

Secondary Muscles: N/A

Joint Action(s): Shoulder abduction, elbow extension

Materials Needed: Weighted objects of equal weight

Visual Demonstration:



Cues:

- Starting Position
 - Standing, hold a weighted object in each hand.
 - Lift your hands so that they are by your shoulders and elbows are pointed towards the ground.
 - Stand tall with your shoulders down and tighten your abdominal muscles.
- Movement Pattern
 - Push your hands straight up in the air until arms are completely extended.

- Be sure not to arch your back and maintain an engaged core while pushing your arms up.
- Return to starting position.

Progressions:

- Progression 1
 - Sit in the middle of a resistance band in a chair.
 - Hold one end of the resistance band in each hand.
 - Perform the shoulder press with the resistance band instead of a weighted object
- Progression 2
 - Combine the shoulder press with a squat.
 - Holding a weighted object in each hand by the shoulders, perform a complete squat (See lower body exercises).
 - Once one squat repetition has been completed, perform a repetition of a shoulder press.
 - Completing one squat then one shoulder press, is one total repetition.

Regressions:

- Regression 1
 - Lie on your back on the floor.
 - Place the back of your hands on the floor, close to your shoulders with elbows pointed towards your feet.
 - Keeping your hands on the floor, straighten your arms as much as you can, raising your hands above your head.
 - Bend your arms and return to starting position.

Exercise: Push-up

Primary Muscles: Triceps brachii, chest (pectoralis major and pectoralis minor), shoulder (anterior deltoid)

Secondary Muscles: Abdominals (transverse abdominals, rectus abdominus, transverse obliques)

Joint Action(s): Horizontal shoulder adduction, elbow extension

Materials Needed: None

Visual Demonstration:



Cues:

- Starting Position
 - Begin on your hands and knees on the floor. Place your hands slightly wider than shoulder-width apart.
 - Tighten your abdominal muscles and extend your legs to push up onto your feet.
 - Your head, hips, and feet should form a straight line.

- Movement Pattern
 - Bend your elbows back to lower your body towards the ground but stop a few inches above the ground – keeping your shoulders, hips, and feet in a straight line.
 - Straighten your arms to push your body back to starting position as one unit – the torso should not lift before the hips.

Progressions:

- Progression 1
 - Perform the push-up as directed above, but use the following hand placements:
 - Each hand 6 inches wider than shoulder width apart.
 - Hands close so that the pointer fingers and thumbs of each hand are touching and form a triangle.
- Progression 2
 - Place your hands shoulder-width apart and place your feet on a step.
 - Perform the rest of the push-up movement pattern as normal.

Regressions:

- Regression 1
 - Begin on your hands and knees. Hands should be slightly wider than shoulder-width apart.
 - Move the knees about 6-8 inches back.
 - Rock forward so that the shoulders are above the wrists and drop your hips to form a straight line along your head, hips, and knees.
 - Perform the push-up movement pattern as directed.
- Regression 2

- Place your hands on an elevated surface such as a stair step, bed, table, or wall. The higher the surface, the easier the exercise will be.
- Depending on the height of the surface, your feet will need to move closer or further away. Adjust the distance of your feet from your hands so that angle between your shoulder and torso is just under 90-degrees. The higher the surface, the closer the feet need to be.
- Bend your elbows back, lowering your torso until it is a few inches away from whatever surface your hands are on.
- Push the body back up in one unit to the starting position.

Exercise: Lat Pulldown

Primary Muscles: Back (Latissimus Dorsi, Rhomboids, Middle Trapezius)

Secondary Muscles: Biceps Brachii

Joint Action(s): Shoulder Adduction, Elbow flexion

Materials Needed: Resistance Band and chair

Visual Demonstration:



Cues:

- Starting position
 - Tie a knot in the middle of a resistance band and close the knot at the top of a door frame.
 - Standing or sitting facing the door as close to the door as possible, hold one end of the resistance band in each hand.
 - Extend both arms above your head.

- Movement Pattern
 - Pulling the elbows out wide and down, bring the hands down to shoulder height.
 - Squeeze your shoulder blades together at the bottom of the exercise.
 - Return to starting position. Do not let your shoulder rise up toward your ears and maintain an upright posture throughout the exercise.

Progressions:

- Progression 1
 - Hold onto the resistance band closer to the knot you made. The higher on the resistance your hold, the more difficult the exercises will be.
 - You should still be able to complete the full range of motion for the exercise.
- Progression 2
 - Begin in the lat pulldown starting position but move yourself 2-3 feet away from the door.
 - Keeping your arms straight, pull your hands down in front of you down to the hips.
 - Return to starting position.

Regressions:

- Regression 1
 - Sit down in front of a counter and place palms down on counter with your arms extended.
 - Push down on the counter as hard as you can and hold for 10-30 seconds.

Exercise: Back Row

Primary Muscles: Back (Middle Trapezius, Rhomboids), Shoulder (Posterior Deltoid)

Secondary Muscles: Biceps Brachii

Joint Action(s): Shoulder extension, elbow flexion

Materials Needed: Resistance band

Visual Demonstration:**Cues:**

- Starting Position
 - Tie a knot in the middle of a resistance band and shut the knot in the door at about elbow height.
 - Stand facing the door, about 3-4 feet away from the door with feet shoulder-width apart, holding one end of the resistance band in each hand.
 - Extend your arms straight in front of you.

- **Movement Pattern**
 - Bend at the elbows back and pull the hands to your side just above your hips.
 - Pinch the shoulder blades together at the end of the exercise.
 - Then return to starting position.

Progressions:

- **Progression 1**
 - Hold both ends of the resistance band in one hand.
 - Face the door standing 3-4 feet away from the door.
 - Perform the back row movement pattern as described but only with the one arm holding the resistance band.
 - The other arm can rest by your side.
 - Do not rotate the torso during any point of the exercise. Hips and shoulders should always be directly facing the door.
- **Progression 2**
 - Stand with your feet shoulder-width apart and hold a weighted object in each hand.
 - Bending at the hips and not the waist, lean forward, pushing the hips back and slightly bending at the knees.
 - Let your arms hang straight toward the ground.
 - Bend the elbows back and pull the hands to your side just above your hips.
 - Pinch the shoulder blades together at the end of the exercise.
 - Lower your hands back down and straighten your arms to complete one repetition.

Regressions:

- **Regression 1**
 - Get on your hands and knees on the floor.

- Bend one elbow back and lift that hand off the floor to your side just above the hips.
- Return the hand to the ground.
- Performing the desired number of repetitions on each hand is one set.

Exercise: Upright Row

Primary Muscles: Shoulder (Anterior and Medial Deltoid), upper back (Upper Trapezius, Levator Scapulae), and Biceps Brachii

Secondary Muscles: N/A

Joint Action(s): Shoulder abduction, elbow flexion

Materials Needed: Weighted object

Visual Demonstration:



Cues:

- Starting Position
 - Stand with feet shoulder-width apart holding a weighted object each hand.
 - Your hands should be touching in front of your thighs with palms facing your body.
 - Stand with good posture – shoulders down and back and head tall.
- Movement Pattern
 - Drive your elbows up to the ceiling lifting your hands up towards your chin.

- Hands should stay close to the body.
- Lower hands back down to starting position.

Progressions:

- Progression 1
 - Stand on the middle of a resistance band and hold one end of the band in each hand.
 - Place your hands in front of your thighs with palms facing your body.
 - Follow the upright row movement pattern as directed above.
- Progression 2
 - Perform the directions for upright row as stated, but before lowering hands back down to starting position, perform a full squat (see lower body exercises for cues on a squat).

Regressions:

- Regression 1
 - Hold the weighted object in each hand and have arms down by side, palms facing your legs.
 - Lift the shoulders up towards your ears in a shrugging motion.
 - Lower shoulder back down.

Upper Body Single Joint

Exercise: Tricep Extension

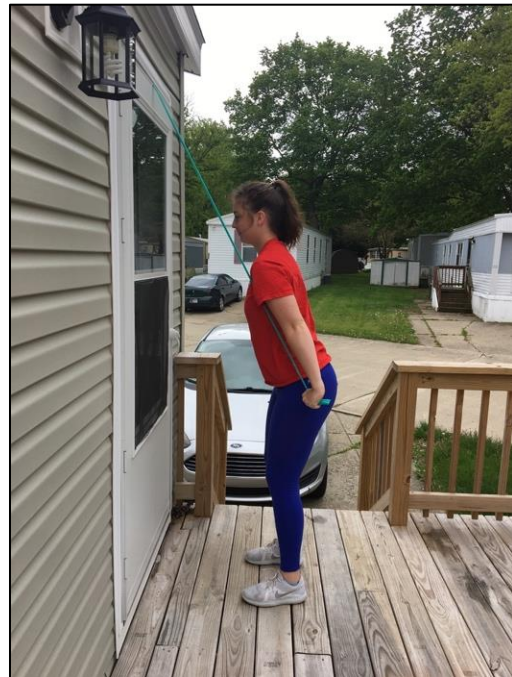
Primary Muscles: Triceps Brachii

Secondary Muscles: N/A

Joint Action: Elbow Extension

Materials Needed: Resistance Band

Visual Demonstration:



Cues:

- Starting Position
 - Tie a knot in the middle of the resistance band and close the knot at the top of a door frame.
 - Standing 1-2 feet away, facing the door, hold one end of the resistance band in each hand.
 - Bend your arms so that your hands are in front of your shoulders and elbows are by your side. Palms should be facing inward.

- Movement pattern
 - Keep your elbows by your side straighten your arms, bringing your hands down by your hips.
 - While extending your arms, turn your palms so that your palms are facing behind you at the end of the movement.
 - Return to starting position.

Progressions:

- Progression 1
 - Hold one end of the resistance band in the right hand and reach the right hand behind the head.
 - Let the band fall behind you.
 - Reach behind your back with your left hand and grab the resistance band.
 - Moving only at the right elbow, extend the right arm, raise the hand towards the ceiling.
 - Lower right hand back behind the head and repeat.
 - Complete desired number of repetitions on each arm to complete one set.
- Progression 2
 - Standing, place the right foot about 2 feet in front of the left foot.
 - Hold a weighted object in your left hand.
 - Lean forward at the hips and let the left hand hang down towards the floor.
 - Bending the left arm, bring the left elbow up towards the ceiling.
 - Holding the shoulder in this position, straighten the left arm, extending the hand behind you.
 - Bend the arm again, and drop the hand back to the floor.
 - Repeat the desired number of repetitions on each arm to complete one set.

Regressions:

- Regression 1
 - Lie on your back with a weight object in each hand.
 - Bend your knees to 90 degrees and place your feet flat on the ground.
 - Extend your arms straight out in front of you so that your hands are pointed towards the ceiling.
 - Keeping the shoulders still, bend the elbows to 90 degrees.
 - Then, keeping the elbows still in the bent position, move at the shoulders and lower your hands to the ground above your head.
 - Extend shoulders and elbows back to the straightened position with hands pointed towards the ceiling.

Exercise: Bicep Curl

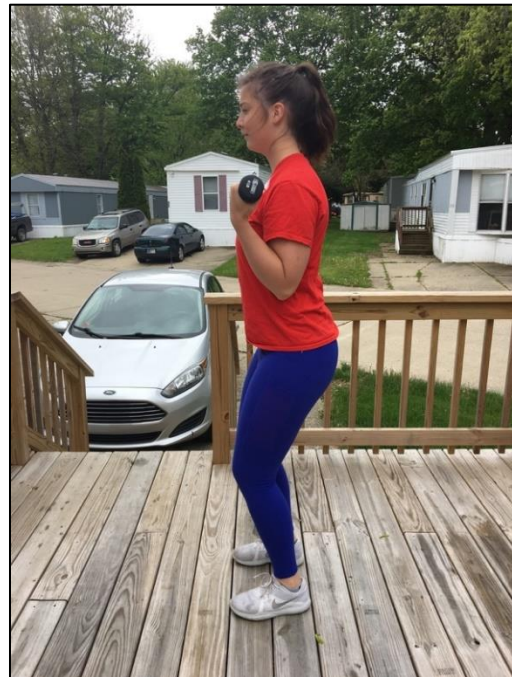
Primary Muscles: Bicep Brachii

Secondary Muscles: N/A

Joint Action: Elbow Flexion

Materials Needed: Weighted object

Visual Demonstration:



Cues:

- Starting Position
 - Standing, hold a weighted object in each hand.
 - Arms should be down by your side and palms facing forward.
- Movement Pattern
 - Bend at the elbows and bring hands up towards your shoulder. Keep your elbows by your side.
 - Do not arch your back trying to bring weights up. If this is happening, use lighter objects.

- Extend your arms to return to starting position.

Progressions:

- Progression 1
 - Add additional sets of the bicep curl but begin with you palms facing each other and facing behind you.
- Progression 2
 - Stand in the middle of a resistance band and hold the ends in each hand.
 - Arms should be down by your side with palms facing forward.
 - Perform the movement pattern of the bicep curl as normal.

Regressions:

- Regression 1
 - Sitting at a table, place your hands underneath the edge of the table with your palms up.
 - Push up on the bottom of the table and hold for 15-30 seconds.

Exercise: Front Raise

Primary Muscles: Shoulders (anterior deltoid and coracobrachialis) and chest (pectoralis major and pectoralis minor)

Secondary Muscles: N/A

Joint Action: Shoulder Flexion

Materials needed: Weighted objects

Visual Demonstration:**Cues:**

- Starting Position
 - Holding light weighted objects in each hand, stand with arms by your side and palms facing backwards.
- Movement Pattern
 - Keeping your arms straight, raise your arms in front of you until hands are at shoulder height.

- Return to starting position.
- Be sure the movement is slow and controlled; don't let the weights swing down.
- Don't arch your when raising the weights. Use lighter weights or another regression if you are having trouble controlling the weight.

Progressions:

- Progression 1
 - Stand in the middle of a resistance band and hold one end of the band in each hand.
 - Perform the exercise using the band.
 - If the band is too short, sit in a chair and hold the middle of the resistance band to the floor with your feet while performing the exercise.
- Progression 2
 - Progress to a more compound movement involving the biceps like shoulder press (see Upper-Body Multi-Joint).

Regressions:

- Regression 1
 - Lie on your back with arms down by your side with palms down.
 - Keep your arms straight and raise your hands up towards the ceiling.
 - Lower hands back down to complete on repetition.
 - Start with no weights and then add weights as you feel comfortable.
- Regression 2
 - If you are having difficulty with the motion of the shoulder, stand about a foot away from a wall, facing the wall.
 - Place the palm of one hand on the wall and slowly slide your hand straight up the wall until you feel a light stretch.

- If it becomes painful, you have gone too far. Hold at the top for 3 seconds and slide hand back down the wall to complete one repetition.

Exercise: Lateral Raise

Primary Muscles: Shoulders (Medial Deltoid, Supraspinatus, upper trapezius)

Secondary Muscles: N/A

Joint Action: Shoulder Abduction

Materials Needed: Weighted objects

Visual Demonstration:



Cues:

- Starting position
 - Stand, holding light weighted objects by your side with your palms turned toward your body.
- Movement Pattern
 - Lift your arms straight out to the side up to shoulder height. Do not go higher than your shoulders.
 - Control the weights as you go back down.

- Keep your back straight; do not arch your back.

Progressions:

- Progression 1
 - Perform the lateral raise moving only one arm at a time.
 - Do not let your torso move side to side. Try to keep it as still as possible.

Regressions:

- Regression 1
 - With your arms down by your side, bend at the elbows until the forearms are parallel with the floor.
 - Keeping the elbow locked in this 90-degree position, lift the upper arm to the side so that arms are parallel with the floor.
 - Return to starting position.

Exercise: Shoulder Extension

Primary Muscles: Shoulder (Posterior Deltoid, teres major, teres minor) and Back (Latissimus Dorsi)

Secondary Muscles: Triceps Brachii

Joint Action: Shoulder extension

Materials Needed: Resistance Band

Visual Demonstration:



Cues:

- Starting Position
 - Tie a knot in the middle of a resistance band and shut the knot in the door frame at hip height.
 - Facing the door, stand 2-3 feet away from the door holding one end of the resistance band in each hand.
 - Arms should be straight and by your side.

- Movement Pattern
 - Keeping your arms straight, pull your hands as far behind you as you can go.
 - Controlling the movement, let hands come forward to rest by your side again.

Progressions:

- Progression 1
 - Progress to more compound movements like lat pulldown or back row (See Upper Body Multi-Joint Exercises).

Regressions:

- Regression 1
 - Sit in a chair and wrap the resistance band once around your legs, just below the knees so that there are two ends of equal length on either side of you.
 - Grab one end of the resistance band in each hand.
 - With your arms straight and by your side, pull your hands backwards as far as you can.
 - Controlling the movement, let hands come forward to resting position.

Exercise: Chest Flys

Primary Muscles: Chest (Pectoralis major, pectoralis minor, serratus anterior)

Secondary Muscles: N/A

Joint Action: Horizontal Shoulder Adduction and Scapular Protraction

Materials Needed: Weighted Objects

Visual Demonstration:



Cues:

- Starting Position
 - Lie on your back with arms straight out in front of you – hands pointed towards the ceiling.
 - Hold weighted objects in each hand with palms facing each other.
- Movement Pattern
 - Keeping your arms straight, lower your hands to the side so that your arms form a “T” with your body and your hands are about 1 inch away from the floor.

- Then raise your hands back up to starting position.
- Be sure to not let your back lift off the floor as you bring your hands down.
- Bend your knees and place your feet flat on the floor if you are having trouble keeping your back flat.

Progressions:

- Progression 1
 - Tie a knot in the middle of a resistance band and shut the knot in a door frame at about shoulder height.
 - Face away from the door and stagger your stance so that one foot is about 2 feet in front of the other.
 - Grab one end of the resistance band in each hand and start with your arms straight out to the side in a “T” position.
 - Keeping your arms parallel with the floor and straight, bring your palms together.
 - Then return to starting position in a controlled manner; do not let the band pull your arms back.

Regressions:

- Regression 1
 - Standing or sitting, place a folded pillow or small bouncy ball in between your hands with your arms straight out in front of you.
 - Squeeze the object with your hands keeping your arms straight for 3 seconds then relax for 1 repetition.

Exercise: Reverse Flys

Primary Muscles: Back (Middle and lower trapezius and rhomboids) and Shoulder (posterior deltoid)

Secondary Muscles: N/A

Joint Action: Horizontal Shoulder Abduction and Scapular Retraction

Materials Needed: Resistance Band

Visual Demonstration:



Cues:

- Starting Position
 - Standing with your arms straight out in front of you, hold the middle of a resistance band with hands about 1 foot apart.
- Movement Pattern
 - Keeping your arms straight, shoulders down, and straight back, pull your hands away from each other until your arms form a “T” with your body.
 - Be sure to squeeze the shoulder blades together in the T position.

- Return to starting position but remain in control of the motion.

Progressions:

- Progression 1
 - Standing, holding a weighted object in each hand, bend slightly at the knees then bending at the hips, not the waist.
 - Push your hips back and lean over so your torso is at about a 45-degree angle. Be sure to keep a straight line from your bottom all the way to your head.
 - With your hands just in front of your knees and palms facing each other, raise your arms straight out to the side until they form a “T” with the rest of your body.
 - When returning to starting position, remain in control of the movement, and don’t let gravity pull your arms down.
- Progression 2
 - Stand in the middle of a resistance band and hold one end of the resistance band in each hand.
 - Perform Reverse Fly Progression 1 using the resistance band.

Regressions:

- Regression 1
 - If you are having trouble squeezing the shoulder blades together without raising the shoulders, stand against a wall facing it.
 - Place your arms at about a 45-degree angles away from your body with your palms facing the wall.
 - Slowly, bring your hands away from the wall while keeping the rest of your body touching the wall. This is what it feels like to squeeze your shoulder blades together.

Exercise: Wrist Curls

Primary Muscles: Forearm (Anterior side: Flexor digitorum profundus, flexor pollicis longus, pronator quadratus, pronator teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris, flexor digitorum superficialis; Posterior Side: brachioradialis, extensor carpi radialis longus, anconeus, extensor carpi radialis brevis, extensor carpi ulnaris, extensor digitorum and extensor digiti minimi)

Secondary Muscles: N/A

Joint Action: Wrist Flexion and Extension

Materials Needed: Weighted objects

Visual Demonstration:





Cues:

- Starting Position
 - Sit in a chair with light weights in each hand
 - Place your forearms on your thighs so that your wrists are free in the air just past your knees and palms are up.
- Movement Pattern
 - Moving only at the wrist and bring your hands up towards your body.
 - Lower your hands as far down as your wrist will comfortably go to complete one repetition.
 - Once you have completed the desired number of repetitions with your palms up, flip your hands over so that your palms are facing the floor and raise your hands up towards the ceiling.
 - Then, lower hands back down.
 - Completing repetitions in both directions is one set.

Progressions:

- Progression 1
 - Sit with forearms on your thighs with palms facing up just past your knees.
 - Hold a lightweight object at one end so that most of the object's weight is just outside of your hand.
 - Slowly flip your hands over so that your palms face down.
 - Then, slowly rotating your hands back so that your palms are face up again.
 - The weighted object should be traveling in a rainbow motion over your hand as you rotate them.
 - As the weight travels past the vertical position, gravity will start to pull on the weight. Do not let this pull control the motion causing your hands to flop; keep the motion slow and controlled.
 - Add this exercise in addition to the wrist curls instead of replacing them for a progression.
- Progression 2
 - Grab a small bouncy ball or pillow.
 - Holding the object in front of your chest squeeze it for 5 seconds.
 - Then gripping the object with your fingertips, try and pull your hands apart and hold for 5 seconds.
 - Squeezing for 5 seconds and pulling for 5 seconds is one repetition.

Regressions:

- Regression 1
 - Lay a hand towel on a flat, smooth surface.

- Place one hand in the middle of the towel and scrunch the towel up into a ball on the table.
- Then, spread the towel back out on the table using just your fingertips.

Exercise: Shoulder Squeeze

Primary Muscles: Neck (Upper Trapezius and Levator Scapulae)

Secondary Muscles: N/A

Joint Action: Shoulder elevation

Materials Needed: Weighted object

Visual Demonstration:



Cues:

- Starting Position
 - Standing, hold weighted objects in each hand with arms down by your side.
- Movement Pattern
 - Raise your shoulders up to your ears. Squeeze for 3 seconds, then relax the shoulders down.

Progressions:

- Progression 1
 - Begin in shoulder squeeze starting position.
 - Roll your shoulders in a forward circular motion.
 - At the top of the circle, squeeze the shoulder to the ears.
 - Once the desired number of repetitions has been completed, roll your shoulders in backward circular motion.
 - Completing both directions is one set.

Regressions:

- Regression 1
 - Lie down on a flat surface with arms down by your side.
 - Squeeze your shoulders up to your ears.
 - Hold for 3 seconds and then drop shoulders.

Exercise: Sword Pulls

Primary Muscles: Back (Lower and middle trapezius), Shoulder (anterior, medial, and posterior deltoid), Arms (Triceps brachii, supinator, biceps brachii)

Secondary Muscles: N/A

Joint Action: Shoulder Flexion, Shoulder Abduction, Supination, and Scapular Retraction

Materials Needed: Resistance band and chair

Visual Demonstration:**Cues:**

- Starting Position
 - Sitting in a chair, hold one end of the resistance band in the right hand and place your left hand about 1 foot below your right hand on the resistance band.
 - Bring both hands down to your left hip. Your left hand will stay by your left hip during this exercise.

- **Movement Pattern**

- Starting with the palm of your right hand facing your body, move at the shoulder and bring your arm up and to the right in a diagonal motion. Your right arm can have a slight bend at the elbow.
- You should end with your right arm about 45 degrees above horizontal, reaching to the right of your body with your palm facing backward.
- Return to starting position.
- Keep your back straight and shoulder back.
- Once you have completed the desired repetitions, switch sides.

Progressions:

- **Progression 1**

- Perform the sword pull as normal but hold the position when moving arm is extended up and out.
- Keeping the shoulder still, bend the elbow and bring the hand towards the shoulder.
- Straighten the arm back out and return to sword pull starting position.

Regressions:

- **Regression 1**

- Lie on your back with your arms by your side.
- Bring your right arm to the left hip.
- Complete the sword pull movement pattern as described above.
- Complete the desired number of repetitions and switch sides. Completing both sides is one set.

Core Exercises

Exercise: Heel Taps

Primary Muscles: Abdominals (Transversus abdominis and rectus abdominus) and Hip Flexors (iliopsoas)

Secondary Muscles: N/A

Joint Action: Hip Flexion

Materials Needed: Chair

Visual Demonstration:



Cues:

- Starting Position
 - Sit on the edge of the chair with your feet flat on the floor in front of you and a straight back.
 - Chair should be at a height where your knees are bent at about a 90-degree angle.
 - While maintaining a straight back, lean back about 12 inches. Place your hands behind you on the seat of the chair for balance if needed.

- With your legs and feet together, lift both heels about 12 inches off the floor. There should be a 90-degree bend at the hips and the knees.
- Movement Pattern:
 - Lower the heel of one foot to the ground while keeping the other leg still in the lifted position. When lowering the foot to the ground, lightly tap the ground with your heel – do not rest the entire foot on the ground.
 - Raise the foot back to the starting position.
 - Repeat the exercise on the other side. One heel tap on each side equals 1 repetition.

Progressions:

- Progression 1
 - Starting position
 - Lie on your back with a 90-degree bend at your hips and knees. Shins should be parallel with the floor.
 - Movement pattern
 - Keeping the knee bent at 90-degrees, lower the heel of one leg to tap the floor. Do not rest your foot on the ground.
 - Bring the leg back up to starting position and repeat on the other side. Each side is one repetition.

Regressions:

- Regression 1
 - Sit at the edge of a chair with both feet flat on the ground in front of you and maintain a straight back.
 - Bending at the hip and keeping the knee bent at about 90 degrees, lift one foot about 6 inches off the ground. Be sure to not lean your upper body from side to side.

- Slowly lower it back to the starting position.
- Repeat the exercise on the other side. One heel tap on each side equals 1 repetition.

Exercise: Straight Leg Raise

Primary Muscles: Abdominals (Transversus abdominis and rectus abdominus) and Hip Flexors (iliopsoas)

Secondary Muscles: N/A

Joint Action: Hip Flexion

Materials Needed: None

Visual Demonstration:



Cues:

- Starting Position
 - Lie down on your back with your knees bent at about a 90-degree angle so that your feet can be flat on the floor. Knees and feet should be together.
 - Extend one leg out onto the floor.
- Movement Pattern
 - Tighten your abdominal muscles.
 - Raise the extended leg off the floor keeping the leg as straight as possible.

- Raise the extended leg until the knee of that leg is at the same height as the knee of the bent leg.
- Lower the extended leg back to the floor. Do not let your back lift off the floor as you lower the leg.
- Repeat.

Progressions:

- Progression 1
 - Begin in the starting position described above.
 - Push through the heel of the bent leg and lift your hips so that your knees, hips, and shoulders are in a straight line. Your thighs should be at the same height.
 - Lower the extended leg until your heel is about 6 inches above the ground.
 - Raise the leg back up to starting position.
- Progression 2
 - Lie on your back with your legs straight and pointed towards the ceiling. Lower one leg until the heel is about 6 inches above the ground or you feel your back begin to arch off the ground. Raise the leg back up to starting position. Switch legs.

Regressions:

- Begin by lying on your back with your knees bent at a 90-degree angle so that your feet can be flat on the floor. Tighten your abdominal muscles. Extend one leg by sliding the heel of that leg away from you until the leg is straight. Then bend the leg back to the starting position by sliding your heel back towards you.

Exercise: Dead Bugs

Primary Muscles: Abdominals (Transversus abdominis and rectus abdominus), Hip Flexors (iliopsoas), Thighs (Rectus femoris, vastus medialis, vastus lateralis, and vastus intermedius), and Shoulder (posterior deltoid and latissimus dorsi)

Secondary Muscles: N/A

Joint Action: Knee Extension, Hip Extension, Shoulder Extension

Materials Needed: None

Visual Demonstration:



Cues:

- Starting position
 - Lie on your back with your arms extended, pointed towards the ceiling.
 - Raise your legs so that there is a 90-degree angle bend at the hips.
 - Bend your knees so that there is a 90-degree angle between the shins and thighs; shins should be parallel with the ground.

- **Movement Pattern**

- Simultaneously, extend and lower your right leg so that your leg is straight, and your heel is about 6 inches off the ground. Be sure to not let the left leg move from the starting position.
- While extending your leg, lower your extended left arm towards your head until the left hand is about a foot above the floor.
- Return to starting position and alternate sides by lowering the left leg with the right arm.

Progressions:

- **Progression 1**

- Begin in the starting position of the dead bug.
- Extend right and left arms and legs at the same time.
- Hold extend position for 3 seconds.
- Return to starting position.

Regressions:

- **Regression 1**

- Perform the dead bug with only the legs. Keep the arms still and alternate lowering each leg. If this is still too difficult, perform the exercise only with the arms. Hold the legs in the starting position and alternate lowering the arms.

- **Regression 2**

- Begin in the starting position for the dead bug.
- Place your hands on your knees with your arms straight.
- Slightly extend at the knees so that your shins are about 45-degrees above horizontal.

- Push your knees into your hands while keeping your arms straight. Hold for 10 seconds then relax. Each 10 second hold is one repetition.

Exercise: Transverse Trunk Hold

Primary Muscles: Abdominals (Internal oblique and external oblique)

Secondary Muscles: N/A

Joint Action: Isometric Hold

Materials Needed: Resistance band

Visual Demonstration:



Cues:

- Starting position
 - Tie a knot in one end of a resistance band and close the knot in the door approximately 2-3 inches below shoulder height.
 - Stand perpendicular to the door and hold the free end of the resistance band in both hands.
 - Hold your arms straight out in front of you so that they are parallel with the floor.
 - Sidestep away from the door so that tension is created on the resistance band.

- Your feet should be shoulder-width apart, and you should have a slight bend in the knees.
- Stand tall with good posture – Straight back, shoulders down, and chin up.
- Movement Pattern
 - Hold the starting position for 30-60 seconds then switch sides. Complete one prolonged hold on each side instead of doing normal repetitions to complete a set.
 - Do not let the resistance band twist your body back towards the door. Your feet, knees, hips, and shoulders should be facing the same direction.
 - Step away from the door to create more resistance and make the exercise more difficult.

Progressions:

- Progression 1
 - Begin in the starting position.
 - Bend the elbows and bring the hands in towards the chest.
 - Press the hands back out to the extended position – similar to a chest press.
 - Complete the movement for 1 repetition and complete per your exercise prescription.
- Progression 2
 - Instead of tying the knot at the end of the resistance band, tie the knot in the middle, and shut close that knot in the door frame. There should be 2 free ends of the resistance band.
 - Hold both free ends of the band in both hands and complete the rest of the transverse trunk hold as described.

Regressions:

- Regression 1
 - Stand facing an open-door frame with one side of the door frame directly in front of you. Your palms should be able to reach the door frame when extended in front of you.
 - Stand with your feet shoulder-width apart, slight bend in your knees, back straight, and arms extended with your palms touching.
 - Move your hands to one side of the door frame.
 - With the hand that is touching the door frame, press the back of that hand into the frame. Press into the frame using your abdominal muscles, not your shoulders.
 - Hold for 30-60 seconds and repeat on the other side to complete one set.

Exercise: Swimmers

Primary Muscles: Back (Quadratus Lumborum and erector spinae), Hip (Gluteus Maximus and biceps femoris), and Shoulder (anterior deltoid)

Secondary Muscles: N/A

Joint Action: Shoulder Flexion and Hip Extension

Materials Needed: None

Visual Demonstration:



Cues:

- Starting Position
 - Lie on your stomach on the ground with your arms straight by your ears and your legs together.
- Movement Pattern
 - Simultaneously, lift your right arm and left leg off the ground as high as you can comfortably lift them.

- Keep your arms straight with the thumb pointed towards the ceiling, and when lifting the leg, squeeze from the buttocks, keep the leg straight, and don't let the leg drift out to the side.
- Lower the limbs back to the ground and repeat with the left arm and right leg. Lift both sides is one repetition.

Progressions:

- Progression 1
 - Begin in Swimmers starting position. Raise both arms and both legs off the ground at the same time with a slight lift in the chest as well. Keep the legs together and the arms straight by the ears.
 - Lower back to the ground back to starting position.
 - If it is difficult to bring arms up to the ears, bring your arms straight out to the side in a "T" position. Then bend your elbows to a 90-degree position. This is called a goal post position.

Regressions:

- Regression 1
 - Begin in Swimmers starting position.
 - Complete the movement pattern, only move one limb at a time in the following order: Right arm, left arm, right leg, left leg. Completion of this order is one repetition.

Exercise: Teapots

Primary Muscles: Abdominals (Transversus abdominis, rectus abdominus, internal obliques, and external obliques) and Back (Quadratus Lumborum and Erector Spinea)

Secondary Muscles: N/A

Joint Action: Torso later flexion

Materials Needed: Weighted object

Visual Demonstration:



Cues:

- Starting position
 - Stand with your feet shoulder-width apart and your arms down by your side.
 - Stand with good posture – tall back and head and shoulders back.
 - Hold a weighted object in one hand.
 - Tighten your abdominal muscles.

- Movement pattern
 - Moving from the torso, lean your body to the side towards the weighted hand.
 - This will not be a large movement; your weight hand will only drop about 5-8 inches. If the movement is painful, use a smaller range of motion.
 - Do not let your torso lean forward or backward. If you are having trouble with this, stand with your back against the wall and perform the exercise. Your heels, bottom, upper back, and head should be the main points of contact with the wall.
 - Straighten back up to starting position.
 - Complete the desired number of repetitions on each side for one set.

Progressions:

- Progression 1
 - Begin in the tea pot starting position.
 - Before starting the movement pattern, raise both arms to the side in a “T” position.
 - Moving from the torso, lean to the side with the weighted hand as far as comfortable.
 - Return to starting position.

Regressions:

- Regression
 - Begin in the teapot starting position, but make sure you have enough room in front of you to walk.
 - While maintaining an upright posture, take 5-10 strides in front of you, turn around and walk back.
 - Walk at your normal pace.
 - Do not let your torso lean to the side while walking.

- Continue walking for 30-60 seconds then switch sides for 1 set.

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